

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-174 (cancelled).

Claim 175 (new): An *in vitro* method for the generation of cartilage tissue from mammalian cartilage cells expressing mechanosensitive TREK potassium ion channels, the method comprising:

- (i) providing mammalian cartilage cells in culture *in vitro*, wherein the cells express mechanosensitive TREK potassium ion channels;
- (ii) providing magnetizable particles comprising a magnetic core and biocompatible coating, wherein the magnetizable particles are tagged with one or more antibodies specific for said TREK potassium ion channels;
- (iii) contacting said cells with said magnetizable particles and allowing the magnetizable particles to couple with said TREK potassium ion channels;
- (iv) applying a magnetic field to said cells, the magnetic field thereby applying mechanical force to said magnetizable particles.

Claim 176 (new): The method of claim 175 wherein the method is for the generation of artificial cartilage tissue.

Claim 177 (new): The method of claim 175 wherein the cartilage cells are chondrocytes or chondrocyte progenitor cells expressing mechanosensitive TREK potassium ion channels.

Claim 178 (new): The method of claim 175 wherein said TREK potassium ion channel is TREK-1.

Claim 179 (new): The method of claim 175 wherein the magnetic field is a variable magnetic field having a frequency of from 0.1 to 10Hz.

Claim 180 (new): The method of claim 175 wherein the magnetic field has a flux density of 10mT to 1400mT.

Claim 181 (new): The method of claim 175 wherein the magnetizable particles have a mean size of 5000 nm or less.

Claim 182 (new): The method of claim 175 wherein the magnetizable particles comprise elemental iron (Fe), or a compound thereof.

Claim 183 (new): The method of claim 182 wherein the iron compound is an iron salt selected from the group consisting of: magnetite (Fe_3O_4), maghemite ($\gamma\text{Fe}_2\text{O}_3$), greigite (Fe_3S_4), and combinations thereof.

Claim 184 (new): The method of claim 175 wherein the magnetizable particles comprise a chromium compound.

Claim 185 (new): The method of claim 184 wherein the chromium compound is chromium oxide (CrO_2).

Claim 186 (new): A method for the generation of new cartilage tissue in a patient, wherein the new cartilage tissue is generated from cartilage cells expressing mechanosensitive TREK potassium ion channels, the method comprising:

- (i) providing magnetizable particles comprising a magnetic core and biocompatible coating, wherein the magnetizable particles are tagged with one or more antibodies specific for said TREK potassium ion channel;
- (ii) administering said particles to a mammalian patient in need of generation of new cartilage tissue, wherein said particles are administered to a site in the patient at which new cartilage tissue is required to be generated and at which cartilage cells expressing the mechanosensitive TREK potassium ion channel are present, and

- allowing the magnetizable particles to couple with said TREK potassium ion channels;
- (iii) applying a magnetic field to said cells, the magnetic field thereby applying mechanical force to magnetizable particles in the body of the patient.

Claim 187 (new): The method of claim 186 wherein the method involves wound healing in the patient through the generation of new cartilage tissue.

Claim 188 (new): The method of claim 186 or 187 wherein the cartilage cells are chondrocytes or chondrocyte progenitor cells expressing mechanosensitive TREK potassium ion channels.

Claim 189 (new): The method of claim 186 wherein said TREK potassium ion channel is TREK-1.

Claim 190 (new): The method of claim 186 wherein the magnetic field is a variable magnetic field having a frequency of from 0.1 to 10Hz.

Claim 191 (new): The method of claim 186 wherein the magnetic field has a flux density of 10mT to 1400mT.

Claim 192 (new): The method of claim 186 wherein the magnetizable particles have a mean size of 5000 nm or less.

Claim 193 (new): The method of claim 186 wherein the magnetizable particles comprise elemental iron (Fe), or a compound thereof.

Claim 194 (new): The method of claim 193 wherein the iron compound is an iron salt selected from the group consisting of: magnetite (Fe_3O_4), maghemite ($\gamma\text{Fe}_2\text{O}_3$), greigite (Fe_3S_4), and combinations thereof.

Claim 195 (new): The method of claim 186 wherein the magnetizable particles comprise a chromium compound.

Claim 196 (new): The method of claim 195 wherein the chromium compound is chromium oxide (CrO₂).